

# Claims

- [c1] 1. A universal antenna adapter for engaging with a fixed antenna or a detachable antenna, wherein the fixed antenna has a circular plug with a latching spring plate attached to one end of the circular plug and the detachable antenna has an antenna body and an antenna connector, the universal antenna adapter comprising:
- a circular opening for receiving the circular plug on the fixed antenna or permitting one end of the antenna connector of the detachable antenna to pass through and engage with the antenna main body;
  - a latching hook structure set around the circular opening such that the latching spring plate clicks onto the latching hook structure and locks up the fixed antenna and the universal antenna adapter after inserting the circular plug of the fixed antenna through the circular opening, or, the latching hook structure clicks onto the antenna connector of the detachable antenna to prevent the antenna connector from rotation or up/down movement after inserting one end of the antenna connector through the circular opening; and
  - a fixed spring plate set as a split latching hook structure such that the antenna connector is prevented from mov-

ing forward or backward after clicking onto the latching hook structure.

[c2] 2. The universal antenna adapter of claim 1, wherein the adapter further comprises:

a body casing having at least two interior surfaces, wherein the circular opening is set on one interior surface and the fixed spring plate is set on the other interior surface; and

a cover plate and a base plate for gripping the casing body.

[c3] 3. The universal antenna adapter of claim 2, wherein the adapter further comprises a fixed blocking wall set on the cover plate for limiting the forward and backward movement of the antenna connector.

[c4] 4. The universal antenna adapter of claim 3, wherein the fixed blocking wall faces the circular opening after the casing body is gripped between the cover plate and the base plate.

[c5] 5. The universal antenna adapter of claim 2, wherein the interior surface with the circular opening and the interior surface with the fixed spring plate are perpendicular to each other.

[c6] 6. The universal antenna adapter of claim 1, wherein the

fixed spring plate deforms elastically to allow the passage of one end of the antenna connector through the circular opening and then snaps back automatically to lock the antenna connector and the latching hook structure together.

[c7] 7. The universal antenna adapter of claim 1, wherein the interior surface of the circular opening has a plurality of graduated grooves and the circular plug of the fixed antenna has a marking spring plate whose free end has a marking edge such that the marking edge sequentially contacts the graduated grooves to produce a sense of graduated movement.

[c8] 8. The universal antenna adapter of claim 1, wherein the circular plug on the fixed antenna has a pair of opposing longitudinal slots such that the circular plug can easily slide into the circular opening through a sidewise elastic deformation of the circular plug.

[c9] 9. The universal antenna adapter of claim 1, wherein the latching hook structure comprises a pair of symmetrical split sections.

[c10] 10. The universal antenna adapter of claim 9, wherein the two symmetrical split sections of the latching hook structure grips the antenna connector.

- [c11] 11. The universal antenna adapter of claim 10, wherein the circular plug of the fixed antenna has a limiting spine set to limit the movement between the two symmetrical split sections of the latching hook structure so that the angle of rotation of the fixed antenna is limited.
- [c12] 12. The universal antenna adapter of claim 1, wherein the main body of the detachable antenna passes through the circular opening and fastens to the antenna connector using screws.
- [c13] 13. The universal antenna adapter of claim 1, wherein the adapter further comprises a fixed blocking wall detached from the latching hook structure for limiting the forward and backward movement of the antenna connector.
- [c14] 14. The universal antenna adapter of claim 13, wherein the fixed blocking wall faces the circular opening.
- [c15] 15. The universal antenna adapter of claim 1, wherein the circular plug of the fixed antenna has a limiting spine set to interfere with the latching hook structure so that the angle of rotation of the fixed antenna is limited.